

same chromosome number. Our cytological observations confirm this idea and suggest, further, that the crossing barriers are due not only to gene differences but also to differences in chromosome structure. For example, culture 5968 has markedly smaller chromosomes than the other cultures. Probably there are cryptic structural differences in the chromosomes of the cultures as well.

In conclusion, we may report that our studies indicate that the North American *M. guttatus* complex of species ($n=14$) appears to be related to the South American *M. luteus* complex ($x=8$) by a series of aneuploid forms of *M. glabratus*. Work is in progress to determine the chromosome numbers of additional taxa and to determine the chromosomal homologies of the various cultures and races in order to clarify further our understanding of the evolutionary relationships in the group.

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ON THE SPECIFIC DISTINCTNESS OF RUDBECKIA LACINIATA AND R. AMPLA

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Wild goldenglow, *Rudbeckia laciniata* L. (Sp. Pl. 906, 1753), is a rather familiar plant growing in alluvial soil in eastern United States and adjacent Canada, ranging from Quebec to Manitoba and southward to eastern Texas and Florida. A morphologically similar plant described from Colorado in 1901 as *R. ampla* A. Nels., occurring in the western parts of the continent from Saskatchewan to South Dakota, New Mexico, Arizona, and Idaho, is less well known, and generally has been treated by contemporary students of the western flora as a synonym of *R. laciniata*.

There is evidence, however, on the basis of study of morphological characters, habitat, and habit, as well as geographical distribution, that

these plants represent different taxa, apparently two distinct species. An alternative interpretation is that *R. ampla* might be treated as a "variety" or subspecies of *R. laciniata*, as the historical trend of human migration had led to discovery and publication of the latter taxon 148 years earlier. However, if one of them should be regarded as a subspecies of the other, the reverse process of designating *R. laciniata* as a subspecies of *R. ampla* is for certain reasons indicated as the more logical course.

According to a theory of origin of the genus *Rudbeckia* expressed by W. M. Sharp (Ann. Mo. Bot. Gard. 22:60. 1935), the present species are descended from an ancestral group originating on the Appalachian or the Ozarkian upland regions exposed since the close of the Paleozoic, the most recent of them inhabiting the Coastal Plain from Virginia to Texas. From this it would appear that *R. laciniata* and *R. ampla*, although morphologically similar, may have had different origins, the latter being much older, and the former of relatively recent origin on or near the Coastal Plain. It would be illogical to treat *R. ampla* as a subspecies of *R. laciniata* simply because the latter was discovered first. It seems therefore most practical to continue to designate each of them by a binary name. This procedure serves to express relationship satisfactorily, and there is no need for "new combinations" or other nomenclatural change.

Some of the diagnostic characters of these two species are summarized in the following key:

- Heads ("disk") 1.5–2 cm. in diameter, becoming ellipsoid and 3–4 cm. in length; rays 9–15 mm. wide; disk corollas 5 mm. long; achenes 5–6 mm. long; receptacular bracts ("chaff") linear, 6–7 mm. long; pappus coroniform, the teeth short, obtuse, indistinct or none; leaves glabrous beneath, the upper surface somewhat strigose toward the apex of the leaf, the trichomes with enlarged pustular bases; basal leaves palmately ternate with broad segments and narrow sinuses; plants 1–1.5 m. tall; peduncles few, stout (1.5–3 mm. thick below the head)....*R. ampla*
- Heads ("disk") globose, 1–1.5 cm. in diameter; rays usually less than 1 cm. wide; disk corollas 3–4 mm. long; achenes 3–4 mm. long; receptacular bracts spatulate, 3–4 mm. long; pappus crown of 4 teeth; upper leaves glabrous above, usually finely strigose beneath varying to nearly glabrous; basal and lower cauline leaves pinnately divided into relatively narrow segments with wide sinuses; plants 1.5–3 m. tall; peduncles several, slender (about 1 mm. thick below the head)
R. laciniata

The relevant bibliographical references to *R. ampla* follow. It is not necessary to list here the extensive bibliography of *R. laciniata* L.

Rudbeckia ampla A. Nelson, Bull. Torrey Club 28: 234, 1901; Rydberg, Fl. Colorado 371, 1906, Fl. Rocky Mts., 927, 1917, Fl. Pr. & Pl. 836, 1932. *Rudbeckia laciniata* sensu A. Gray, Syn. Fl. 1(2): 262, 1878, ex parte; A. Nelson, Man. Bot. Rocky Mts. 544, 1909; Kearney & Peebles, Flowering Pl. Arizona 950, 1942, Arizona Flora 898, 1951; Davis, Fl. Idaho 777, 1952; Weber, Handb. Pl. Colorado Front Range 194, 1953; Harrington, Man. Pl. Colorado 598, 1954; non L., 1753.

Type locality. Colorado. The first cited specimen is *Baker 699* from Pagosa Springs.

To those who may be familiar with these plants the habit and appearance of members of the two taxa are noticeably different, although, as often happens in descriptive taxonomy, some of the differences are not easily stated in objective terms. In general, however, *Rudbeckia ampla* is a shorter, somewhat stouter plant with larger heads on fewer and stouter peduncles, the rays averaging somewhat wider. The disk corollas, achenes, and receptacular bracts are longer, the latter, commonly known as "chaff," furnishing distinctive characters that have been found to be important in the taxonomy of other species of the genus. Finally, it may be pointed out that the pappus of *R. ampla* is more coroniform, and the leaves are usually thicker and with different indument. In some specimens of *R. laciniata* the undersurface of the leaves tends to be less pubescent than in others, but almost all leaves show at least a few trichomes, particularly when viewed under the binocular microscope. It may be appropriate to note here that some published statements concerning *R. laciniata* are perhaps not as explicit as they should be. Unless modified, they may serve as a barrier to clarity of understanding of the plants described. For example, in the eighth edition of Gray's Manual the statements referring to the elongation of the "disk" of *R. laciniata*, as well as that indicating length of achenes, appear to be somewhat exaggerated, and are more nearly applicable to *R. ampla*.

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PINES FROM NUEVO LEON, MEXICO

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The forest geneticist usually attempts to grow as many as possible of the different strains and species of trees in which he is interested. These may be used for two purposes: 1) to establish a breeding arboretum, the trees to be used as parents for desired crosses; 2) to establish, on a limited scale, trials of adaptability to local or special environmental conditions. Both purposes were in mind when the Texas Forest Service sponsored two pine collection trips to the state of Nuevo León, Mexico. In conjunction with drought resistance studies, species that can do well under severe conditions of heat and drought were especially sought.

The accrual of further knowledge of the taxonomic and evolutionary position of the Mexican pines was another objective of importance. The purpose of this paper is to report on the several pine species and their many intergrading forms found growing in one of the states of northeastern Mexico, Nuevo León. Although collections were not made at all points in the state, the three areas visited were intensively studied, and

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